

Executable SysML Model Development Accelerator for the Constellation Program, Phase I

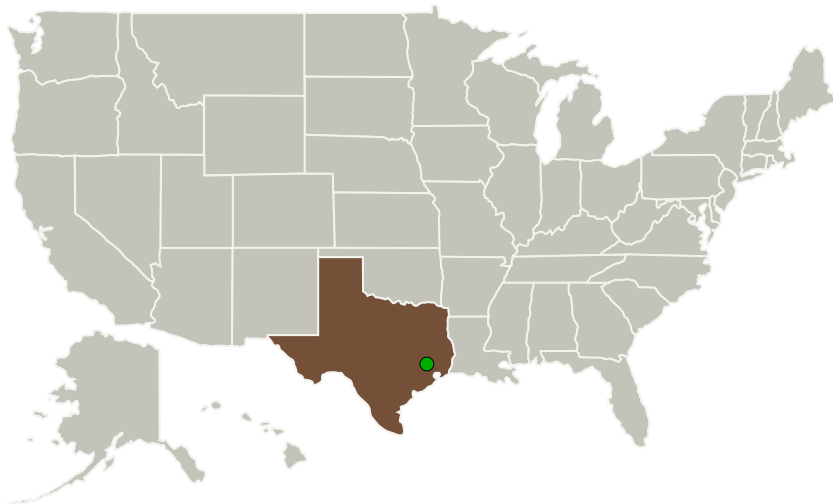
Completed Technology Project (2010 - 2010)



Project Introduction

The proposed project is aimed at investigating ways to accelerate the creation of SysML based models that can be used for model checking and more generally for Model-Based System Engineering. In the past few years, multiple projects in the ISHM domain as well as the operations domain (Procedure V&V) have started to leverage the power of model checking through the use of the Finite State Machines (FSM) formalism. These models have been typically developed manually by subject matters experts in the different spacecraft systems and subsystems. This is a significant hindrance to the widespread use of models for any targeted application. The envisioned suite of tools would allow non experts to derive the appropriate SysML models for their intended use. In addition to providing a generic library of space systems models, methods to customize these models to the specific target system, our proposal will also design tools that enable the automatic or semi automatic extraction of appropriate information from different source, thus significantly accelerating the development and the usage of such models.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Texas

Project Transitions



January 2010: Project Start



July 2010: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140058>)

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

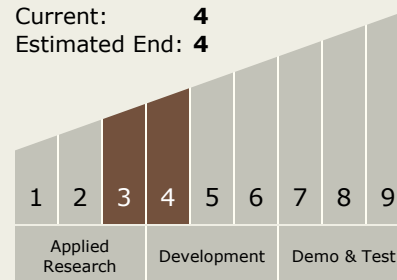
Michel Izygon

Co-Investigator:

Michel Izygon

Technology Maturity (TRL)

Start: 3
Current: 4
Estimated End: 4



Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - TX11.2 Modeling
 - TX11.2.1 Software Modeling and Model Checking

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Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System